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L13: Entry 20 of 23

File: JPAB

Dec 24, 1999

PUB-NO: JP411354497A

DOCUMENT-IDENTIFIER: JP 11354497 A

TITLE: FORMATION OF ETCHING MASK IN GALLIUM NITRIDE BASED COMPOUND SEMICONDUCTOR

PUBN-DATE: December 24, 1999

## INVENTOR-INFORMATION:

NAME

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JAPAN SCIENCE &amp; TECHNOLOGY CORP

APPL-NO: JP11136332

APPL-DATE: May 17, 1999 .

INT-CL (IPC): H01L 21/3065

## ABSTRACT:

PROBLEM TO BE SOLVED: To form a mask effectively while enhancing productivity.

SOLUTION: Silicon dioxide SiO

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L13: Entry 21 of 23

File: EPAB

Apr 29, 1999

PUB-NO: WO009920816A1

DOCUMENT-IDENTIFIER: WO 9920816 A1

TITLE: METHOD FOR PRODUCING A GALLIUM NITRIDE EPITAXIAL LAYER

PUBN-DATE: April 29, 1999

## INVENTOR-INFORMATION:

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APPL-NO: FR09802212

APPL-DATE: October 15, 1998

PRIORITY-DATA: FR09713096A (October 20, 1997)

INT-CL (IPC): C30B 25/02; H01L 33/00; C30B 29/40

EUR-CL (EPC): H01L033/00

## ABSTRACT:

The invention concerns a method for producing a gallium nitride (GaN) epitaxial layer characterised in that it consists in depositing on a substrate a dielectric layer acting as a mask and depositing on the masked gallium nitride, by epitaxial deposit, so as to induce the deposit of gallium nitride patterns and the anisotropic lateral growth of said patterns, the lateral growth being pursued until the different patterns coalesce. The deposit of the gallium nitride patterns can be carried out ex-situ by dielectric etching or in-situ by treating the substrate for coating it with a dielectric film whereof the thickness is of the order of one angstrom. The invention also concerns the gallium nitride layers obtained by said method.

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L14: Entry 15 of 35

File: JPAB

Mar 23, 2001

PUB-NO: JP02001077472A  
DOCUMENT-IDENTIFIER: JP 2001077472 A  
TITLE: MANUFACTURE OF SEMICONDUCTOR LASER

PUBN-DATE: March 23, 2001

## INVENTOR-INFORMATION:

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APPL-NO: JP11248004

APPL-DATE: September 1, 1999

INT-CL (IPC): H01S 5/24; H01S 5/343

## ABSTRACT:

PROBLEM TO BE SOLVED: To obtain a method by which a high-performance single-lateral-mode GaN semiconductor laser which makes stable single transverse mode operations and has a low aspect ratio, a low threshold current, etc., can be manufactured.

SOLUTION: A stable refractive index-guide type single-transverse mode GaN semiconductor laser has a low threshold current and a small aspect ratio. For producing the laser a current-constricting layer 5 is formed through quasi-selective growth performed by using a dielectric substance, such as SiO<sub>2</sub>, as a mask, AlGaInN having a lower refractive index or GaInN which has high absorption of light, and AlGaInN having the properties of both materials. A stripe-like opening 7 is formed, through a process in which a polycrystalline layer deposited on the mask composed of the dielectric substance is lifted off together with the mask, so that the shape opening 7 is formed in a high a quality with high reproducibility.

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USPT,PGPB,JPAB,EPAB,DWPI,TDBD	l2or l3 or l4 or l5	36495	<u>L6</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	(indium adj nitride)or (aluminum adj nitride)	17173	<u>L5</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	aluminum adj gallium	6864	<u>L4</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	algan or algainn or inn or aln	17778	<u>L3</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	(gallium adj nitride)or gan	9395	<u>L2</u>
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	mask or mask\$4	386729	<u>L1</u>